PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P86503	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2004/008412	International filing date *(day/month/year)* 09.06.2004	Priority date *(day/month/year)* 20.06.2003
International Patent Classification (IPC) or national classification and IPC H05K5/00, B60Q3/00, B60Q1/26		
Applicant YAZAKI CORPORATION et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 11 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *sent to the applicant and to the International Bureau)* a total of sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☒	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
19.04.2005	30.06.2005
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Telephone No. +49 89 2399- 6001 BOLTES, M.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/008412

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

   Description, Pages

   1-59 as originally filed

   Claims, Numbers

   1-15 as originally filed

   Drawings, Sheets

   1/14-14/14 as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
   - ☐ restricted the claims.
   - ☒ paid additional fees.
   - ☐ paid additional fees under protest.
   - ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

   see separate sheet

4. Consequently, this report has been established in respect of the following parts of the international application:

   ☒ all parts.

   ☐ the parts relating to claims Nos. .

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	3,4,10,11,15
	No:	Claims	1,2,5-9,12,13,14
Inventive step (IS)	Yes:	Claims	3,4
	No:	Claims	1,2,5-15
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item IV.

The separate groups of claims are:

Group I: Claims 1-5
Mechanical coupling between a base and a cover of a LED lamp module, where more LED lamp modules are put vertically together to build a LED illumination device

Group II: Claims 6-9
Internal electric connection of the LED lamp modul

Group III: Claims 10-15
External electric connection of plurality of the LED lamp modules in a lamp modul assembly

They are not so linked as to form a single general inventive concept (Rule 13.1 PCT) for the following reasons:

The closest prior art has been identified as:

D1: US 5672000 (column 1, line 24 - column 4, line 13; figures 1,3-5,7,8)

Group I of claims:

From a comparison of the disclosure of this prior art D1 and the technical features of claims 1-5, D1 (column 1, line 24 - column 4, line 13; figures 1,3-5,7,8) discloses all the features of claims 1,2,5:
- claim 1: An LED illumination device (column 1, lines 24-27) comprising LED lamp modules coupled in a vertical direction (figures 2,3), each LED lamp module comprising: a base (figure 5, (2)); a conductive circuit formed on the base (figure 5, (4a),(4b),(4c)); and a cover to be attached to the base to cover the conductive circuit (figure 5, (3)), whereby a coupling portion is formed on said base to be coupled with the cover of the LED lamp module located at the upper side thereof (figure 5, (26)), and a mating coupling portion is

formed on said cover to be coupled with the coupling portion of the base of the LED lamp module located at the lower side thereof (figure 5, (31));
- claim 2: wherein said coupling portion is a locking frame projecting upward (figure 5, (3),(31)), and said mating coupling portion is a locking arm having a hook at its distal end and projecting downward to be engaged with said locking frame (figure 5, (26)), wherein one guide, into which said locking arm is inserted, is formed on said base near the locking frame, and the other guide into which said locking frame is inserted, is formed on the cover near the locking arm (figures 5,7; (24),(32));
- claim 5: and wherein a locking part for locking the coupled cover is formect on the base, and a mating locking part is formed on the cover to be engaged with said locking part (figure 5, (26),(31));

from this analysis follows that the following special technical features of claim(s) 1-5 can be seen to make a contribution over D1 (Special Technical Features (STF), (Rule 13.2 PCT)):
- locking frame is curved inward (see claim 3);
- a guide rib is formed on a ceiling wall of the cover to straighten the curved locking frame when coupling the cover and the base to each other (see claim 4);

From these STF the objective problem to be solved by the 1st group of claims can be construed as:

To improve the locking of the base and the cover of the LED modul of the LED illumination device ;

Group II of claims:

Document D1 discloses all the features of claims 6-9 (column 1, line 24 - column 4, line 13; figures 1,3-5,7,8);

There are no STF.

Group III of claims:

From a comparison of the disclosure of this prior art D1 and the technical features of claims 10 -15 the following features can be seen to make a contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)):

- a junction box, a junction connector, an electric component for reducing voltage applied to said LED lamp modules is provided on the junction box or the junction connector (see claims 10,12);
- electric wires are wired to a junction box, a junction connector or other circuits through an electrical connector; an electric component for reducing voltage applied to said LED lamp modules is provided on said electrical connector (see claims 11,13);
- electrical connector includes a base and a cover, said base having a bus bar, and said electric component for reducing applied voltage connected to said bus bar, said bus bar having connector terminals and being connected to electric wires (see claim 14);
- one positive terminal of said connector terminals of the bus bar is connected to one terminal of said electric component for reducing applied voltage from a voltage source, the other positive terminal of said connector terminals is connected to an anode of a voltage source, and a negative terminal of said connector terminals is connected to a ground of the voltage source (see claim 15);

From these, the objective problem to be solved can be construed as:

To reduce the cost of the vehicle's electrical components in such a way, that the electric component for reducing applied voltage (on LEDs) moves from every singular LED modul to an other component of the vehicle's harness, where it can serve to plurality of LED modules;

The above analysis shows that the special technical features of group I (claims 1-5) are neither the same as nor corresponding to those of group II (claims 6-9), nor the same as or corresponding to those of group III (claims 10-15).

In conclusion, therefore, the three groups of claims are not linked by common or

corresponding special technical features and are not linked by a single general inventive concept.
The application, hence does not meet the requirements of Unity of Invention as defined in Rules 13.1 & 13.2 PCT.

Re Item V.

1 The following documents are referred to in this communication:

D1: US-A-5 672 000 (LIN TAYEH) 30 September 1997
D2: US-A-4 087 696 (DALE L. BULL) 02 May 1978
D3: DE 101 33 255 A (OSRAM OPTO SEMICONDUCTORS) 30 January 2003
D4: US-B-6 422 716 (HENRICI DIETER ET AL) 23 July 2002
D5: US-A-6 017 241 (KOMAI NEIL M) 25 January 2000
D6: EP-A-1 039 214 (VEJBOR PETR) 27 September 2000
D7: EP-A-1 289 341 (HELLA KG HUECK &Co.) 05 March 2003
D8: WO 98/38613 A (STAR HEADLIGHT & LANTERN CO) 3 September 1998
D9: US-A-5 660 461 (IGNATIUS RONALD W ET AL) 26 August 1997
D10: EP-A-1 178 706 (FER Fahrzeugelektrik GmbH) 06 February 2002

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parenthesis applying to this document):
An LED illumination device (column 1, lines 24-27) comprising LED lamp modules coupled in a vertical direction (figures 2,3), each LED lamp module comprising:
- a base (figure 5, (2));
- a conductive circuit formed on the base (figure 5, (4a),(4b),(4c));
- and a cover to be attached to the base to cover the conductive circuit (figure 5, (3)), whereby a coupling portion is formed on said base to be coupled with the cover of the

LED lamp module located at the upper side thereof (figure 5, (26)), and a mating coupling portion is formed on said cover to be coupled with the coupling portion of the base of the LED lamp module located at the lower side thereof (figure 5, (31)).

D1 discloses therefore all the features of claim 1.

Documents D3 (paragraphs 1,6,18,19,25; figures 1-3), D4 (column 1, lines 5-9; column 1, line 62 - column 2, line 5; column 2, lines 44-50; column 3, line 6 - column 4, line 6; figures 1-7), D8 (claims 1,2,4; page 1 - page 4; figure 1) and D9 (column 1, line 51 - column 2, line3; column 2, line 66 - column 3, line 15; column 3, line 26 - column 6, line 39; figures 3-8) also disclose all the features of independent claim 1.

The subject matter of claim 1 is therefore not new.

3 INDEPENDENT CLAIM 6

3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 6 is not new in the sense of Article 33(2) PCT.

Document D1 discloses further:
An LED lamp module comprising (column 1, lines 24-27):
- an insulating case having a base and a cover (figures 4,7,8; (2),(3));
- a conductive circuit provided at said base (figure 5, (4a),(4b),(4c));
- an LED mounted on the base and electrically connected to the conductive circuit (figure 5, (6));
- electric wire joints provided respectively upstream and downstream of the conductive circuit (figure 5; (40),(42),(43),(1),(11),(12),(13)).

D1 discloses therefore all the features of claim 6.

Documents D3 (paragraphs 1,6,16-25; figures 1-4) and D5 (figures 1-11; column 1, lines 5,6; column 1, line 58 - column 2, line 10; column 3, line 4 - column 4, line 39) also disclose all the features of independent claim 6.

The subject matter of claim 6 is therefore not new.

4 INDEPENDENT CLAIM 12

4.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 12 is not new in the sense of Article 33(2) PCT.

Document D6 discloses:
A lamp module assembly comprising (paragraph 1):
- a plurality of LED lamp modules (figure 2);
- electric wires being connected directly to the LED lamp modules without any branch wires, and wired to a junction box or a junction connector (figure 2, (5),(8); paragraphs 15,16); and
-an electric component provided on said junction box or said junction connector for reducing voltage applied to said LED lamp (paragraphs 8,9; claim 5; figure 2, (9)).

D6 discloses therefore all the features of claim 12.

Document D10 (figure 4; paragraphs 1,2,3,11,13,19) disclose also all the features of independent claim 12.

The subject matter of claim 12 is therefore not new.

5 INDEPENDENT CLAIM 13

5.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 12 is not new in the sense of Article 33(2) PCT.

Document D6 discloses further:
A lamp module assembly comprising (paragraph 1):
- a plurality of LED lamp modules (figure 2);
- electric wires connected directly to the lamp module assembly without any branch

wires (figure 2, (5),(8); paragraphs 15,16);
- an electrical connector, through which said electric wires being wired to a junction box, a junction connector, or other circuits (paragraphs 8); and
-an electric component provided on said electrical connector for reducing voltage applied to said LED lamp modules (paragraph 9; claim 5; figure 2, (9)).

D6 discloses therefore all the features of claim 13.

The subject matter of claim 13 is therefore not new.

6 DEPENDENT CLAIMS 2, 5, 7-11,14,15

Dependent claims 2, 5, 7-11,14,15 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT). See D1-D7 (for passages, see search report).

7 DEPENDENT CLAIMS 3, 4

The combination of the features of dependent claims 3, 4 are neither known from, nor rendered obvious by, the available prior art. The reasons are as follows:
None of the available prior art documents discloses or suggests on the same solution of the problem as proposed in these two claims. The person skilled in the art would therefore not come to the subject matter of claims 3 and 4 without using an inventive ability.

Further comments:

8 Independent claims 1,6,12 and 13 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (documents D1 and) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the

characterising part (Rule 6.3(b)(ii) PCT).

9 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

10 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D5 and D6 is not mentioned in the description, nor are these documents identified therein.

11 The vague statement in the description on page 31, lines 16-18 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them.